3. Cave Creek Water Company

The Cave Creek Water Company has approximately 9.6 square miles in its franchise areas and currently uses 490 water meters to serve its population. The service area is located about 25 miles northeast of downtown Phoenix, and includes the town of Cave Creek. The Cave Creek Water Company service area is located north of Carefree Highway, west of Sections 23 and 27 of T6N, R4E, east of 24th Street, and south of the Tonto National Forest Boundary.

According to the ADWR Annual Water Withdrawal and Use Report, in the Cave Creek Water Company area in 1998, a total of 877 af of water were produced. Of that total, 322 af were from pumped groundwater and the remaining 555 af were CAP water. From the 877 af of water produced, 208 af of potable and raw CAP water were delivered to other municipal and individual users, leaving a balance of 669 af to be delivered for use.

A. Plans to Take and Use CAP Water

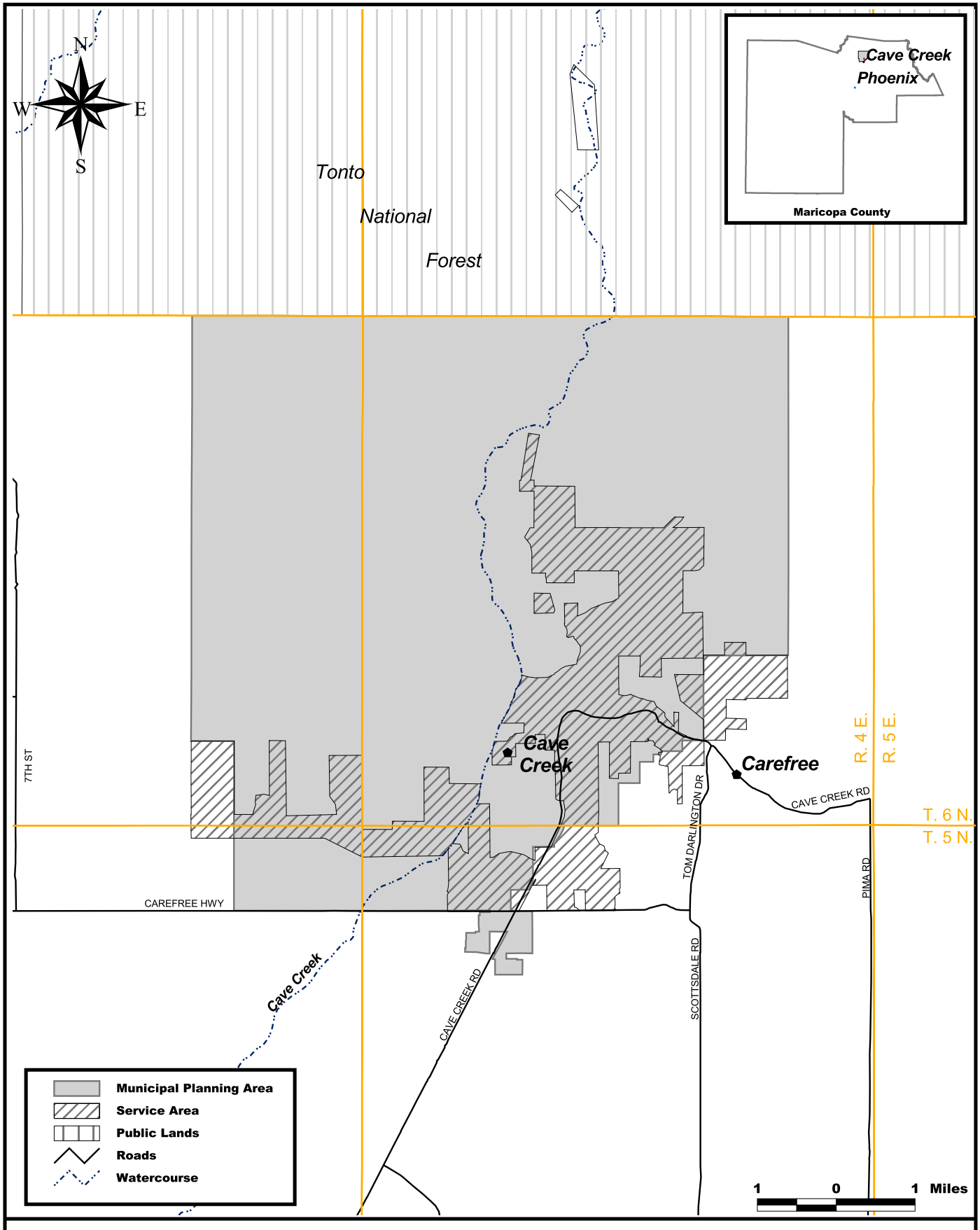
The Cave Creek Water Company currently has a subcontract for 1,600 afa and is currently using 1,010 af of the allocation. Under the Settlement Alternative, Cave Creek Water Company would receive an additional 806 af of CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I -15 outlines the proposed allocations by alternative.

Table L-M&I-15
CAP Allocation Draft EIS
Cave Creek Water Company – Proposed CAP Allocation

Alternative	Allocation (in afa)	Priority
Settlement Alternative	806	M&I
No Action	0	-
Non-Settlement Alternative 1	806	M&I
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	0	-
Non-Settlement Alternative 3B	882	NIA
Existing CAP Allocation	1,600	

Figure L-M&I-8 shows the service area and MPA for the Cave Creek Water Company. The service area covers approximately 6,171 acres and the MPA covers approximately 27,246 acres. CAP water can be delivered anywhere within the designated service area.

Cave Creek currently receives their CAP allocation through a CAP connection and pipeline at Cave Creek and Payson Roads. There is also an existing 16-inch pipeline at Deer Valley and Cave Creek Roads. The Cave Creek Water Company currently has a water treatment facility with a capacity of 1,100 afa. They are in the process of upgrading and increasing capacity at the facility. At the time of this writing, the engineering work had been completed and the necessary approvals from Maricopa County are expected in the short-term. The water treatment capacity would be upgraded to 2,200 afa, with an ultimate capacity of 3,300 afa



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

June 2000

CAP Allocation Draft EIS
General Location Map
Cave Creek Water Company

Figure #L-M&I-8

annually. With the completion of improvements, no additional facilities would be required for the additional CAP allocation (George 2000).

B. Population Projection

The population in 1985 for the Cave Creek Water Company was 1,900. The estimated 2001 population level for the Cave Creek Water Company MPA is 4,181 and the estimated 2051 population level is 16,615.

C. Water Demand and Supply Quantities

As previously shown in Appendix C–M&I Sector Water Uses, it is estimated that water demand in the Cave Creek Water Company MPA would increase from 3,538 af in year 2001 to 6,030 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-16. Based on these anticipated water demands, the CAP water which would be allocated under the Settlement Alternative would provide 23 percent and 13 percent of the current estimated water supply required for the Cave Creek Water Company MPA for the years 2001 and 2051, respectively.

Table L-M&I-16
CAP Allocation Draft EIS
Cave Creek Water Company– Projected Water Use

Alternative	Annual CAP Deliveries		Groundwater		Effluent		CAGRD (Groundwater)		Total Demand	
	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051
Settlement Alternative	2,406	2,406	65	65	1,067	2,973	0	968	3,538	6,411
No Action	1,600	1,600	65	65	1,873	2,973	0	1,774	3,538	6,411
Non-Settlement Alternative 1	2,406	2,406	65	65	1,067	2,973	0	968	3,538	6,411
Non-Settlement Alternative 2	1,600	1,600	65	65	1,873	2,973	0	1,774	3,538	6,411
Non-Settlement Alternative 3A	1,600	1,600	65	65	1,873	2,973	0	1,774	3,538	6,411
Non-Settlement Alternative 3B	2,406	2,406	65	65	1,067	2,973	0	968	3,538	6,411
Note: A more detailed breakdown of supplies may be found in Appendix C.										

It is estimated that the demand for water at the end of the CAP contract period would be approximately 6,030 af. For all alternatives, there is estimated to be no unmet demand. In the Settlement Alternative, Non-Settlement Alternative 1 and Non-Settlement Alternative 3B, 806 afa of demand is met by the additional CAP allocation. Alternatively, this 806 afa of demand is met by CAGRD membership under the No Action Alternative and Non-Settlement Alternative 2 and 3A.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

According to data from MAG, the land use designations in the Cave Creek Water Company MPA in 1995 consisted of approximately 4,105 acres of developed land, 3,122 acres of rural land, 13,488 acres of vacant land, and 6,531 acres of water, including lake, rivers and canals. As described in the introduction to this appendix, the 1995 MAG categories were redefined into three new categories (i.e., agriculture, desert and urban). These 1995 data were also updated and adjusted based on reviews of the 1998 aerial photography and the field surveys that were completed to assess biological resources for this EIS. Table L-M&I-17 provides the projected acres of land within the Cave Creek Water Company MPA which are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

Table L-M&I-17
CAP Allocation Draft EIS
Cave Creek Water Company– Projected Land Use Changes Within the MPA (in acres)

Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changes to Urban Acreage
Settlement Alternative	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921
No Action	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921
Non-Settlement Alternative 1	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921
Non-Settlement Alternative 2	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921
Non-Settlement Alternative 3A	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921
Non-Settlement Alternative 3B	2001	0	-	25,604	-	1,642	-
	2051	0	0	19,683	5,921	7,563	5,921

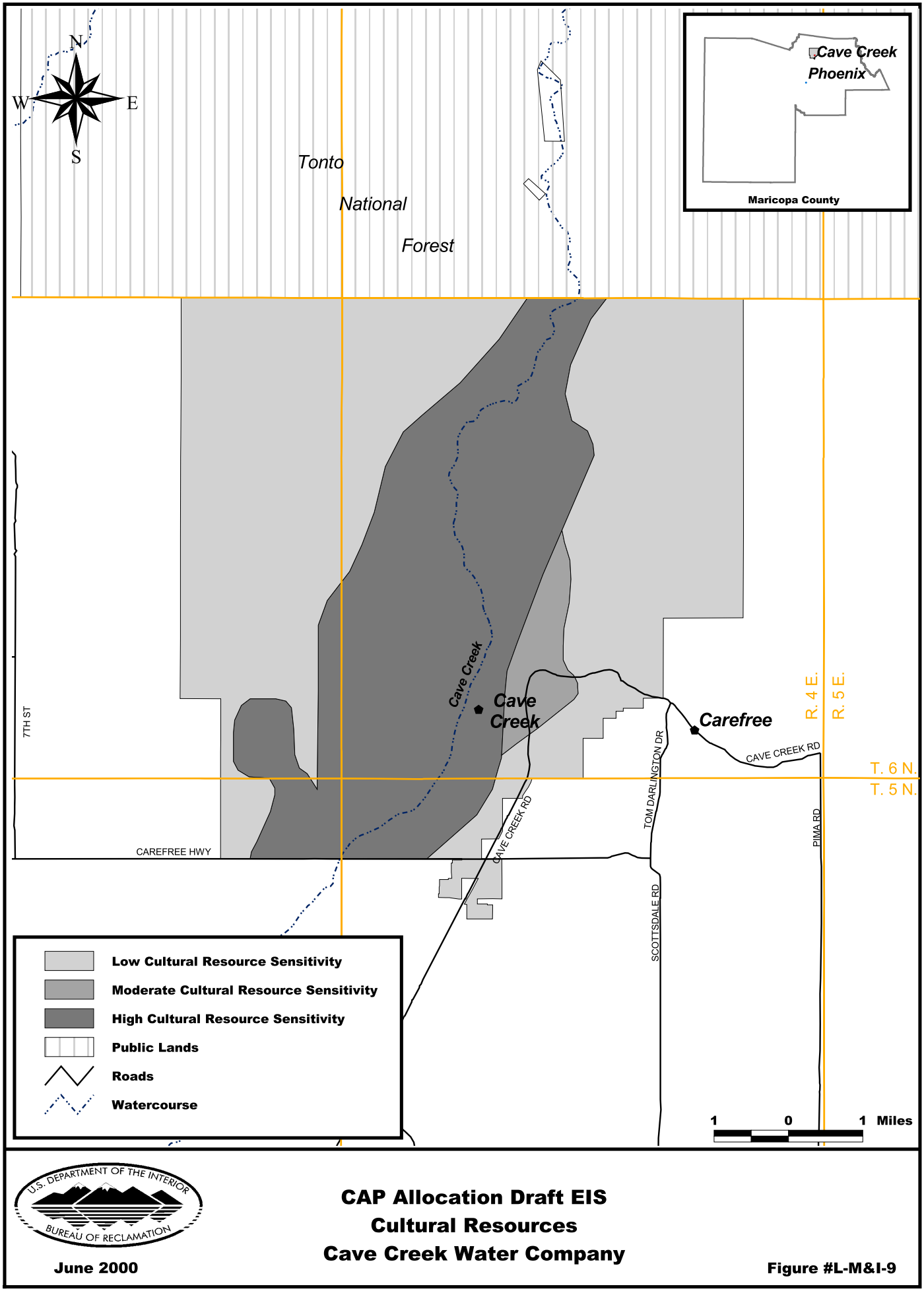
2. Archaeological Resources

A representative sample of the Cave Creek Water Company MPA has been surveyed (e.g., DeMaagd and Punzmann 1996; Holliday 1974; Madsen 1981; Wright 1993) and numerous sites have been documented, particularly along the banks of Cave Creek and adjacent terraces. The southern boundary of the service area extends onto the Cave Creek Archaeological District, a National Register property. Prehistorically, the area was utilized for agriculture. Within areas of high and moderate cultural resource sensitivity, sites range from compound villages with multiple structures (e.g., Spur Cross Ranch) to small, isolated field houses and limited-activity artifact scatters; features include burials, middens, roasting pits, check dams, rock piles and alignments, and "waffle gardens." Other known prehistoric resources include petroglyphs, trails, and shrines. Historic sites are associated primarily with mining. The Cave Creek Mining District was formed in 1874 to represent not only the area's large mines—such as the Golden Star Mine and the Phoenix Mine—but also the hundreds of smaller placer mines in the vicinity that were exploited for a year or two before they were abandoned (RECON 1987). Resources associated with ranching, agriculture and water management (e.g., canals), transportation, and the military also are present. Because of the nature of the depositional environment and the intensity of human occupation in the area through time, the potential for encountering additional surface and buried sites within this entity is very high. Cultural resource sensitivity areas in the Cave Creek Water Company MPA are shown on Figure L-M&I-9. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the Cave Creek Water Company MPA is high. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions, and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. There would be no cultural resources impacts from construction of CAP water delivery facilities, since no new facilities would be required.

3. Biological Resources

Existing Habitats

The northern portion of the Cave Creek MPA is interspersed with low mountains under 4,500 feet in elevation. The steeper, mainly north- and east-facing slopes support a Jojoba/Mixed Scrub Association where co-dominants include barrel cactus, brittlebush, teddybear cholla, white-thorn acacia, wild-buckwheat, and turpentine-bush. Foothill paloverde, allthorn, desert ironwood, and saguaro are the common trees. Remaining slopes (mostly below 2,500 feet in elevation) and coarser soils support Bursage/Foothill Paloverde Association. Co-dominants include jojoba and staghorn cholla and, in addition to the foothill paloverde, other common trees include velvet mesquite, desert ironwood, blue-paloverde, allthorn, and saguaro. The density of saguaros is generally moderate but sometimes high. Rather small areas of the Creosote-Bush Association occur on silty plains to the south. The cover is low and trees are widely-spaced. Blue-Paloverde/Desert Ironwood Association habitat occurs along major washes. The habitat zones located in the Cave Creek Water Company MPA are shown on

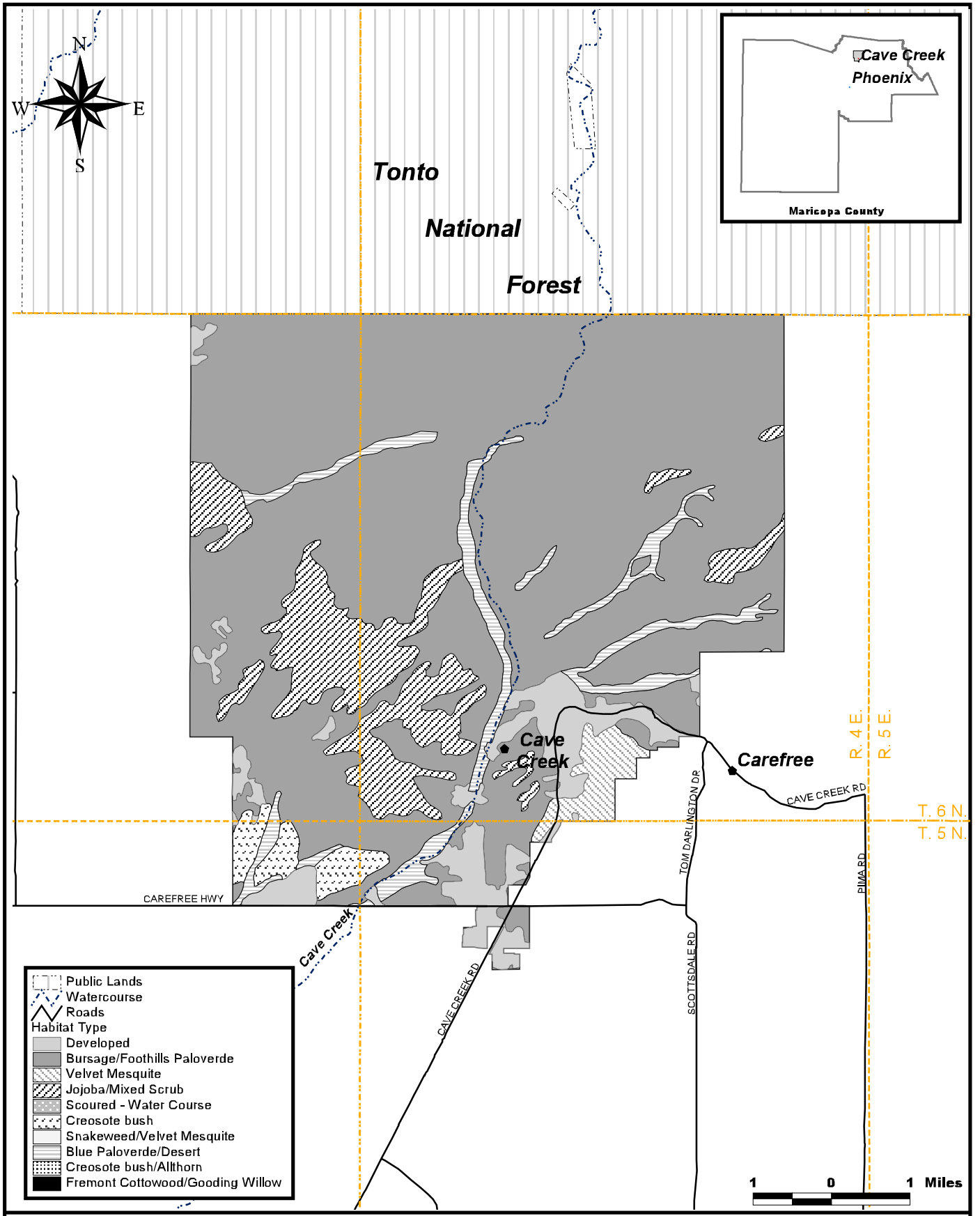


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CAP Allocation Draft EIS
Cultural Resources
Cave Creek Water Company

June 2000

Figure #L-M&I-9



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

June 2000

CAP Allocation Draft EIS
Habitat Zones
Cave Creek Water Company

Figure No. L-M&I-10

Figure L-M&I-10. Table L-M&I-18 provides the habitat acreages in the Cave Creek Water Company MPA for the habitat zones described above.

Table L-M&I-18
CAP Allocation Draft EIS
Cave Creek Water Company – Habitat Acreages

Vegetation Name	Acres
Developed	1,642
Bursage / Foothills Paloverde	20,596
Velvet Mesquite	443
Jojoba / Mixed Scrub	2,731
Creosote-Bush	589
Blue Paloverde / Desert	1,245
Total	**27,246**

Impacts to Biological Resources

Under the No Action Alternative, urban growth within the Cave Creek MPA over the 50-year study period would result in loss of estimated 5,921 acres of Sonoran Desertscrub and associated wildlife resources. There may be indirect impacts on wildlife occurring in the adjacent undeveloped habitat. Under the action alternatives, there is no difference in impacts from the No Action Baseline. No new CAP water delivery facilities are required, so no additional construction–related impacts to biological resources would occur.

Potential T&E Species and Acres of Potential T&E Species Habitat

Because the allocation of CAP water has no effect on urban growth, there would be no effect on T&E species from the CAP allocation. The Town of Cave Creek would be responsible for complying with the relevant provisions of the ESA as it permits and approves future urban growth.

The Cave Creek MPA is located within Maricopa County for which there are 14 T&E species listed by the USFWS. Potential habitat only exists for cactus ferruginous pygmy-owl, southwestern willow flycatcher and Arizona agave. Approximately 22,284 acres of potentially suitable habitat for the cactus ferruginous pygmy-owl were identified within the Cave Creek MPA. Approximately 364 acres above 3,000 feet of potential suitable habitat for Arizona agave were identified in the Cave Creek MPA. Potential suitable habitat for southwestern willow flycatcher may occur in isolated pockets in the Cave Creek MPA. However, construction within the riparian corridor would require issuance of CWA Section 404 permits by the U.S. Army Corps of Engineers (Corps). As part of the permitting process, the Corps would have to comply with Section 7 of the ESA, and detailed surveys for threatened and endangered species would be carried out as necessary.

4. Water Resources

Demands in the Cave Creek Water Company have historically been met by pumping groundwater from the underlying basin fill. In more recent years, CAP water has been used to

meet a portion of the demands. This reliance on groundwater has resulted in declining groundwater levels over time. The concentration of TDS in the underlying groundwater is generally from about 200 to 700 ppm.

Estimated groundwater level impacts are summarized in Table L-M&I-19, which shows the estimated groundwater level change for the period from 2001-2051 as well as the groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative.

Under the No Action Alternative, groundwater levels would decline by about 13 feet from 2001 to 2051. While CAP water available to Cave Creek Water Company would be used to meet demands and offset groundwater pumping, increased demands over time would be met through increased groundwater pumping. Substantial changes in groundwater quality would not be anticipated. Also, subsidence would not be anticipated in this area. Non-Settlement Alternatives 2 and 3A would have the same amount of CAP water available to the Cave Creek Water Company as the No Action Alternative, and therefore, would have the same changes in groundwater levels, groundwater quality, and subsidence.

Groundwater levels under the Settlement Alternative and Non-Settlement Alternatives 1 and 3B would rise by about 45 feet over the 2001 to 2051 period. This rise reflects the additional CAP water that would be available under these alternatives and the corresponding reduction in groundwater pumping. Substantial changes in groundwater quality would not be anticipated for these alternatives. Also, subsidence would not be anticipated.

Table L-M&I-19
CAP Allocation Draft EIS
Cave Creek Water Company–Groundwater Data Table

Alternative	**Cave Creek***	
	Estimated Groundwater Level Change from 2001-2051 (in Feet)	**Groundwater Level Impact** (in Feet)**
No Action	-13	--
Settlement Alternative	45	58
Non-Settlement Alternative 1	45	58
Non-Settlement Alternative 2	-13	0
Non-Settlement Alternative 3A	-13	0
Non-Settlement Alternative 3B	45	58

*****Values correspond to analysis of the Carefree sub-basin, as discussed in Appendix I.
** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, of providing the proposed allocations and, in their absence,

alternative water supplies. The alternative water supplies include joining the CAGRD and, if needed, treating and reusing effluent. The difference in cost for this small increment of Cave Creek's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately 13.4 percent of the total year 2051 demand for Cave Creek Water Company.

Table L-M&I-20
CAP Allocation Draft EIS
Cave Creek Water Company –Cost of Potable Water for Additional Allocation Increment

Alternative	Cost of Water ($ per af)	Water Source
Settlement Alternative	154[a]	CAP Allocation
No Action	238 – 239[b]	CAGRD
Non-Settlement Alternative 1	154[a]	CAP Allocation
Non-Settlement Alternative 2	238 – 239[b]	CAGRD
Non-Settlement Alternative 3A	238 – 239[b]	CAGRD
Non-Settlement Alternative 3B	154[a]	CAP Allocation

Notes:
a. Estimated average unit cost in year 2000 dollars.
b. Estimated range of unit costs in year 2000 dollars. Range is due to estimated change in groundwater pumping lifts during study period and does not include wellhead treatment costs.